What is claimed is:

1. An electrolyte sheet comprising a body of varied thickness, said electrolyte sheet having a textured surface with multiple protruding features, said protruding features forming an undercut angle with respect to the normal of said electrolyte sheet, said undercut angle being more than 0 degrees and less than 15 degrees.

2. The electrolyte sheet of claim 1, wherein said undercut angle is 1 to 10 degrees.

3. The electrolyte sheet of claim 1, wherein the thickest part of said electrolyte sheet is at least 0.5 microns greater than the thinnest part of said electrolyte sheet.

4. The electrolyte sheet of claim 1, wherein the electrolyte sheet is a ceramic sheet formed of a polycrystalline ceramic selected from a group consisting of partially stabilized zirconia or stabilized zirconia, and being doped with a dopant selected from the group consisting of the oxides of Y, Ce, Ca, Mg, Sc, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, In, Ti, Sn, Nb, Ta, Mo, W and mixtures thereof.

5. The fuel cell device of claim 1, wherein the thickest part of said electrolyte sheet is at least 2 micrometers greater than the thinnest part of said electrolyte sheet.

6. A solid oxide electrode/electrolyte assembly comprising:

a thin electrolyte sheet of varied thickness of an average electrolyte sheet thickness between 0.5 micrometers and 45 micrometers, said electrolyte sheet also has a textured surface

with multiple protruding features, said protruding features forming an undercut angle with respect to the normal of said electrolyte sheet, said undercut angle being less than 15 degrees;

at least one cathode disposed on a one surface of said electrolyte sheet; and

at least one anode disposed opposite the cathode on another surface of said electrolyte sheet.

7. A solid oxide electrode/electrolyte assembly according to claim 6, comprising a plurality of cathodes situated on one side of said electrolyte sheet and and a plurality of anodes situated on an opposite side of said electrolyte sheet.

8. A device for separating a green sheet with a textured surface from the green sheet carrier, said device comprising:

a first roller, said first roller pulling said textured green sheet from said carrier; and

a second roller displaced by a predetermined distance from said first roller, said second roller being a take take-up roller for said carrier,

wherein said textured surface includes projecting features with under cut angles with respect to the normal of said textured surface, said features interlock with complementary features of said carrier and said first and said second rollers, together, provide enough force to separate said projecting features of said green sheet from said complementary features of said carrier while providing appropriate an angular separation of 20 to 90 degrees between the textured green sheet and the carrier.

9. The device of claim 7, wherein said first roller is a take-up roller for said green sheet.

10. The device of claim 7, wherein said green sheet has a textured surface facing said carrier.

11. The device of claim 7, wherein said projecting features are at least 0.5 micrometers high.

12. The device of claim 7, further including at list one strip, said strip being located proximate to the carrier, said strip, in conjunction with said rollers providing angular separation of 20 to 90 degrees between the textured green sheet and its carrier.

13. The device of claim 12, wherein said angular separation is between 30 and 80 degrees.

14. The device of claim 7, further including at least one additional roller to provide appropriate angular separation of 30 to 80 degrees between the green sheet and its carrier.

15. A method for separating a green electrolyte sheet from its carrier, said method comprising the steps of:

(a) providing, on a carrier, a green electrolyte sheet with at least one textured surface;
(b) securing a first portion of the green electrolyte sheet to a first take up roller;
(b) securing a first portion of the carrier to a second take up roller;
(c) transferring the green electrolyte sheet and the carrier toward said first and said second take up rollers;
(d) turning said first roller at to provide enough tension to the green sheet to separate the green electrolyte sheet from the carrier; and
(e) turning said second roller to at least partially roll up the carrier,
wherein at least one surface of said green electrolyte sheet includes multiple protruding features with undercut angles, said features being coupled to complimentary features in said carrier and the step of turning said first roller unzips said protruding features from the complimentary features of said carrier.

16. A method for separating a green electrolyte sheet from its carrier, said method comprising the steps of:

(a) placing the green sheet and its carrier on a vacuum table such that said green sheet is situated adjacent to said vacuum table,

(b) applying enough suction force to said green sheet to keep said green sheet on said table;

(c) heating said carrier to a temperature above 30 °C ; and

(d) lifting said carrier from said green sheet, thus separating said green electrolyte sheet from said carrier.

17. The method of claim 16 wherein at least one surface of said green electrolyte sheet includes multiple protruding features with undercut angles, said features being coupled to complimentary features in said carrier, and the step of lifting said carrier from said green electrolyte sheet unzips said protruding features from the complimentary features of said carrier.

18. The method of claim 16 wherein said temperature is between 50 °C and 150 °C.